them, the author resorted to the following: In injecting atropine into a medusa whose contractions have already ceased as the result of the action of pilocarpine, the author finds that the movements begin again. The interpretation of these facts is that pilocarpine, nicotine and muscarine, in small doses, excite and exaggerate a normal process of inhibition exercised by the ganglia, and atropine, in paralyzing the ganglia or the peripheral extremities of the inhibitory nerves, counteracts this process. In whatever manner it is brought about, the above show that there is undoubtedly an inhibitory process in the normal rhythmical movements of the medusa, which is all the more interesting since this animal is one of the first in the zoological scale to show a nervous apparatus, the process of inhibition thus appearing synchronously with the phylogenetic origin of the muscular and nervous tissues. JELLIFFE.

THE DIFFERENTIAL DIAGNOSIS BETWEEN FRIEDREICH'S DISEASE AND INSULAR SCLEROSIS. F. Savery Pearce (N. Y. Med. Journ., Oct. 24, 1903).

Friedreich's disease, a non-system disease, consisting of gliosis principally involving the posterior columns, presents incoordination in all four extremities, a jerky or reeling gait, loss of knee jerks, nystagmus, disturbance of articulation (stumbling or blurred speech), and a progressive tendency to helplessness. It is distinguished from Marie's form by occuring before, instead of after, puberty; the choreiform movements of the head, arm and trunk are very pronounced in Marie's form. Optic atrophy is exceptional in Friedreich's, common in Marie's form. Tendon reflexes are diminished in the former, increased in the latter, with clonus; club foot and scoliosis are common in Friedreich's, exceptional in Marie's form. Insular sclerosis is a disease caused by sclerotic plaques scattered through the central nervous system, and as a rule occurs between the years twenty and thirty, though sometimes congenital and hereditary.

The gait may be spastic, cerebello-spastic, or cerebellar, in the latter there being rigidity with diminished or normal reflexes; but nystagmus, staccato speech, and intention tremor are always present. Sometimes the Marie type of Friedreich's disease may be confused with insular sclerosis, but the former may show an alcoholic history, has few remissions, no intention tremor of the tongue or hand. In insular sclerosis the scanning speech and distinct intention tremor of the hand is present. The disease is an evolutionary defect. W. B. NOYES.

A SEPARATE CENTER FOR WRITING. Hermon C. Gordinier (Am. Journ. Med. Sciences, Sept., 1903).

Autopsy in a case operated on for supposed cerebral neoplasm showed a glioma occupying the foot of the second left frontal convolution, being distinctively separated from the arm area by the precentral sulcus. The growth was elevated about 0.5 c.m. above the surrounding cortex, was slightly irregular in outline, of a distinctly firm consistency and oval in shape. Its longest cortical diameter was 2 c.m. The pia was intimately adherent to it. The tumor was seen to extend downward and inward in the centrum semiovale as far as the roof of the anterior cornu of the lateral ventricle, and forward to near the apex of the frontal lobe, involving almost exclusively the white matter of the second frontal gyrus. The rest of the brain was normal.

The symptoms that had been caused by this were failure of strength and occasional attacks of vertigo during six months preceding her death; headaches of increasing severity, gradual failure of sight, due to optic neuritis; paresis of the right external rectus muscle. No aphasia, either motor or sensory, but a total inability to write was present, although understanding perfectly written language. There was no paralysis of the muscles of the hand, forearm or arm, and the fine and coarse movements of the hands could be executed in a perfect manner.

A tendency to ataxia, staggering towards the right side, developed.

The writer claims that motor aphasia and agraphia do not necessarily exist together, and, secondly, if both exist the lesion probably involves both the second and third left frontal convolutions in the right-handed. Third, motor agraphia depends on a lesion of the second left frontal gyrus.

CAMP (Philadelphia).

BRAIN SURGERY IN EPILEPSY AND CONGENITAL MENTAL DEFECT. William P. Spratling (N. Y. Med. Journ., Sept. 19, 1903).

Thirty-three cases of epilepsy of the head have been operated on at the Craig Colony, twenty of which were due to trauma of the head. The average duration of the epilepsy before the operation was approximately five years and a half. The results after one or more years showed in two cases no improvement of the disease, either temporary or permanent. In eight the attacks were lessened in frequency and severity, the operation being a part of the treatment only. In three the disease was much worse after the operation. Improvement, therefore, occurred in only 25 per cent. of the cases, and these were subject to the regular routine of medical treatment.

The author reports 194 cases from literature operated on for idiocy. Of 111 of these 19, or 17 per cent., died in consequence of the operation or soon after; 25, or 22.5 per cent., were operated on with no result; 10, or 9 per cent., were operated on with slight result; 24, or 21.5 per cent., were improved; 30, or 27 per cent., improved without reports as to their character.

In 83 more permanent cases, 24 per cent. died, 65 per cent. were unimproved, 10½ per cent. were improved, 74 out of 83 received no benefit. The writer holds that if the epilepsy is unessential, reflex, rudimentary in type, or of short duration, and the operation removes the cause early enough, we may expect the convusions to cease in many cases. Of congenital mental defect, not a single case is reported where a normal mental status was established through surgical intervention.

W. B. NOYES.

GROWTH AND HISTOGENESIS OF NERVES. Charles Russell Bardeen (Amer. Journ. of Anatomy, March 28, 1903).

In the development of the peripheral nervous system it is convenient to recognize several stages, although it is difficult to draw a sharp line of demarcation between them. The first stage is that of the differentiation of the motor nuclei and sensory ganglia; the second includes the period of outgrowth from the region of the central nervous system to various peripheral anlages; the third the development of the branches from the primary nerves, to the various parts differentiated from these anlages; and the fourth, the development of functional unity between the nerve fibers and the structures to which they are distributed. During the second period the proximal nerve-plexuses are formed, during the third the coarser peripheral plexuses, and during the fourth the finer terminal plexuses.

The axis-cylinder fibrils of the nerve grow out by continuous extension from central cells. They divide and branch extensively as they proceed from the region of the central nervous system outwards. They leave the central nervous system and spinal ganglia, in naked bundles, but soon become intimately related with sheath-cells which accompany them closely throughout the period of growth. At the growing tip of a nerve it is difficult to decide whether the axis-cylinder fibrils or the sheath cells proceed. Posterior to this the nerve gradually becomes dis-